

Fostering Cluster Development in Wisconsin

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Introduction

What are clusters? In *The Competitive Advantage of Nations* (Porter, 1990), Michael Porter describes industry clusters as geographical concentrations of competitive firms in related industries doing business with each other and sharing a need for common talent, technology and infrastructure. In a cluster, large and small companies in similar industries achieve much more by collaborating than they would operating individually. Clusters go beyond SIC codes to include a network of interconnected businesses, suppliers, services, academic institutions and producers concentrated in a particular area. These groups of businesses and supporting institutions encourage the creation of new companies, new products and new employment opportunities in high-skilled, high-wage type jobs.

Clusters can grow through informal networking, but some formal structure helps ensure their growth and effectiveness. The Wisconsin Department of Commerce (Commerce) will help build a more formal structure to promote the state's important industry clusters. Commerce will play a role in removing barriers to cluster formation and helping provide a forum for businesses in targeted clusters to voice their concerns, identify their challenges and explore their opportunities. The state of Arizona, often seen as a leader in the cluster crusade, found the best practice to emerge from its clustering efforts to be "the use of cluster working groups to help policy makers better understand an industry, the challenges it faces and the most valuable assistance government can provide." (Waits, 2000)

Clusters are not a government program. The private sector must lead successful clusters. Businesses and other key stakeholders should examine the changes and improvements that need to occur *within* the cluster and not focus solely on what government should do *for* the cluster. Clusters present an opportunity to shift from the usual Commerce approach of assisting one business at a time to working with a collaborative group of businesses in key industry sectors.

Commerce has wrestled with the notion of industry clusters and what it means to Wisconsin. Are clusters a magic bullet that will jump-start our economy, reverse the brain drain and revolutionize the Wisconsin economy? No. But clusters can help government be more responsive to the needs of business and put industries in a position to take advantage of their strengths.

This paper identifies 10 established and emerging clusters that Commerce will support. It also reviews the rationale behind their selection, describes basic guidelines for cluster activities and identifies Commerce staff assigned to each cluster. Commerce will continue to work with businesses not represented by a

cluster. Programs and resources will still be available to help these businesses start-up and expand.

The goals of a successful cluster parallel the goals of our agency – increasing market share and profits, creating well-paying jobs, encouraging the formation of new companies and identifying opportunities for research, development and training. It behooves all of us – business, government, academia and others – to encourage the growth and success of Wisconsin's clusters.

Why These Clusters?

The Department of Commerce sees the benefits of recognizing Wisconsin businesses working together as a cluster. Focusing our efforts on important clusters can benefit entire industries poised for growth. As Michael Porter points out, "The enduring competitive advantages in a global economy lie increasingly in local things – knowledge, relationships, motivation – that distant rivals cannot match." Our state excels in all three of these areas with an outstanding educational system, extensive public and private partnerships and a strong commitment by the state's workforce to improve our economic climate.

The clusters Commerce has identified include both key industries upon which the Wisconsin economy has been built and those upon which our future lies. Strong links already exist between the high-tech industries and our core manufacturing and agricultural sectors. Clusters can help further develop and formalize some of those links, strengthening the Wisconsin economy in the process.

Manufacturing, agriculture and tourism have been the foundation of the Wisconsin economy for decades. Currently, the manufacturing sector provides approximately 528,000 jobs in Wisconsin and contributes 20 percent of the state's personal income. For more than 150 years, agriculture has driven the state's economy and it remains the number one industry in Wisconsin, employing one of every five people. In 2002, tourism employed 323,000 Wisconsinites and generated \$6.6 billion in income.

Also important are the high-wage, high-growth industries. These industries will help keep talented people in Wisconsin and attract new talent from out of state. Biotechnology and medical equipment are already \$4.9 billion industries, employing 28,000 people. Wisconsin needs a critical mass of fast-growing technology businesses to increase per capita incomes and build a stronger, broader-based economy.

Commerce will focus on seven established and three emerging clusters that represent the strengths of our state economy.

- **Established Clusters:** These seven clusters represent the state's mature industries that have been the backbone of our economy. They are our core businesses with influential leaders, strong industry affiliations and existing partnerships. Commerce will continue to work with these clusters to identify their needs and utilize existing programs to encourage retention and expansion activities.

- 1) Dairy
- 2) Food Products and Processing
- 3) Paper
- 4) Plastics
- 5) Printing
- 6) Small Engine Manufacturing
- 7) Tourism

- **Emerging Clusters:** To grow Wisconsin's high-end economy, Commerce will provide support and assistance to three clusters with high growth potential. Recognizing that the needs and challenges facing these clusters differ from those of established industries, Commerce will devote a different mix of resources to promote their success.

- 1) Biotechnology
- 2) Information Technology
- 3) Medical Devices

Why these 10? The state needs to strike a balance between important existing industries and those which have the potential to be important in the future. We cannot and will not turn our backs on industries that have supported the state for decades, but we also cannot continue exactly as we have in the past. While we recognize the importance of working closely with emerging technology industries, this will not be at the expense of our established clusters. To achieve overall sustainability, we must support both cluster categories.

In identifying these clusters, Commerce looked at high-growth industries offering higher-than-average wages. The agency also focused on traded clusters – those which sell products or services outside of Wisconsin and bring money into the state. Commerce also considered those industries with strong buyer-supplier relationships. We also identified clusters that demonstrate strong ties to higher education, research and development and training facilities.

The state's focus on these specific clusters will not preclude any regional efforts to support these or any other additional industry clusters. Certain regions of the state have already invested a great deal of time, effort and energy identifying the clusters critical to their economic success. Some of these regional efforts are well underway and the state cluster program will not undermine this work. Commerce will work to support these regional efforts and encourage other regions to examine their economies and determine what regional industries have critical mass.

This is neither a perfect nor an all-encompassing list. But it is a good one. These established and emerging clusters drive the state economy now and will determine its success in the future. Supporting these clusters will be an efficient and effective use of state resources.

Wisconsin's State Clusters

ESTABLISHED CLUSTERS

The depth of the clustering efforts in these established industries varies considerably. The level of support and participation Commerce provides will also vary, depending on the needs of the particular cluster, current efforts underway and the role of the industry.

1) Dairy

Recognizing the need to invest in our agricultural industry to improve prospects for future growth and development, the state and its industry partners established the Dairy 2020 initiative in 1993 to "make Wisconsin the best place to produce and market milk and dairy products." The elements of a successful cluster can be seen in the Dairy 2020 mission statement.

To help Wisconsin dairy businesses, through cooperation at all levels, find ways to improve the business climate and competitive position of the Wisconsin Dairy Industry, enhance individual business profitability, and enrich the quality of life for Wisconsin's dairy farmers and their rural communities.

A key component of the initiative is the Dairy 2020 Council, a 26 member advisory council representing dairy producers and processors, lawmakers and public institutions. Council members work to identify and address challenges facing Wisconsin's \$20 billion dairy industry. Responding to the needs identified by the industry, Commerce created two funding programs specifically for this cluster. The programs encourage and stimulate the start up, modernization, and expansion of Wisconsin dairy farms. The Dairy 2020 Early Planning Grant helps dairy producers secure professional assistance in preparing business

plans. For qualified dairy producers, the Milk Value Production (MVP) program provides the financing necessary to fill the "equity gap" and to partner with local communities to increase milk production in Wisconsin.

2) Food Processing

Maintaining a safe and reliable food supply is an essential function of any economy. Wisconsin has a well-developed food processing industry, supplying unique food products to local, regional, national and international markets. Our state ranks sixth nationally in food products with food, kindred products and food processing businesses employing close to 70,000 people and contributing about \$4.8 billion to the Wisconsin economy.

Food processing encompasses manufacturing, warehousing and distribution as well as retailing and food service. The cluster touches many other industries such as packaging, transportation, wholesale and retail trade and equipment manufacturing. Food processing and biotechnology go hand-in-hand. Many organizations and institutions are already conducting research and development in the areas of food chemistry, food microbiology and food safety.

Given changing consumer preferences, the shrinking availability of land for industrial use, more stringent regulations and increased global competition, Wisconsin's food processing cluster faces significant challenges but also has an existing infrastructure and existing regional initiatives in place to move this cluster forward.

3) Paper

Wisconsin has been the number one paper producing state in the country for the last fifty years. The 45,000 individuals employed in paper make an average wage of \$49,000, topping all other industry sectors in Wisconsin. Papermaking also indirectly supports an additional 108,000 jobs across the state.

This cluster is already up, running and working on key issues identified by industry, suppliers, academia, elected state and local officials, consultants and economic development professionals. Under the direction of the Wisconsin Paper Council, these key stakeholders formed recommendations for the cluster designed to provide a strategic plan for maintaining and enhancing the economic health of this industry. Commerce recognizes the importance of this cluster and will continue to work with the paper industry on its current and future recommendations.

4) *Plastics*

Wisconsin's 618 plastic companies employ over 53,000 people and boast \$9.6 billion in revenues per year. Efforts within this industry have been underway for several years, resulting in numerous regional meetings, an industry-wide directory and educational initiatives such as the 2+2+2 plastics program that includes local high schools, technical colleges and the UW system.

By working with this key cluster, Commerce hopes to collaborate with the existing infrastructure and partners to help the industry succeed.

5) *Printing*

The printing industry employs over 43,000 Wisconsinites with high levels of technical expertise, pays above average wages and has great potential for future growth. Under the leadership of a private sector cluster champion, a printing cluster council representing major industry stakeholders was formed. The group has been working to advance a series of initiatives designed to create a competitive advantage for the printing industry.

This printing council performed a gap analysis to identify the cluster's biggest need. Recognizing the importance of establishing a strong research and development component available to all the state's printers, the cluster began pursuing a public sector R&D facility. Efforts are underway to encourage a national printing trade association with a strong R&D component to relocate to Wisconsin. The Department of Commerce has partnered with this cluster and used existing programs within the agency to commit \$500,000 in funds to this project, which will benefit the entire printing industry of Wisconsin.

6) *Small Engine Manufacturing*

Nearly 23% of all Wisconsin jobs are in the manufacturing sector, compared to 13% nationally. Wisconsin manufacturers employ more than 528,000 of the state's 2.6 million workers and pay an average of \$39,000 per year. Manufacturing is clearly the cornerstone of the state's economy.

Because "manufacturing" is a huge sector covering hundreds of activities, Commerce will specifically concentrate on small engine manufacturing. Wisconsin leads the nation in the production of low-horsepower gasoline engines. We will concentrate on this specific manufacturing sector rather than diluting our efforts by trying to include a large and general manufacturing category. By working together with the small engine manufacturers and their suppliers, the cluster can explore ways to raise worker productivity, advance technology and improve efficiency. Governor Doyle's economic development strategy

“Grow Wisconsin” specifically addresses manufacturing and ways to increase productivity by investing in training and improving the skills of our talented, hardworking labor force.

7) Tourism

With nearly 15,000 inland lakes, 33,000 miles of rivers and streams, two Great Lakes and the Mississippi River, Wisconsin is a hub of natural resource-based tourism. Add an outstanding collection of cultural resources such as museums, arts groups and historical centers, and it's no surprise that Wisconsin's tourism industry brings in over \$6.6 billion to the state each year.

Tourism is not a typical industry and cannot be represented by a few SIC codes. Its economic impact begins with the sum of every dollar visitors spend on lodging, retail purchases, gas, food, entertainment or any other goods or services people buy. The quality of a visitor's experience depends not only on the appeal of the primary attraction but also on the quality and efficiency of complementary businesses such as hotels, restaurants, shopping outlets and transportation facilities. Because members of the cluster are mutually dependent, good performance by one can boost the success of the others. The Wisconsin Department of Tourism is the natural choice to help coordinate the efforts of a tourism cluster.

EMERGING CLUSTERS

As outlined in the Wisconsin Technology Council's *Vision 2020* report, emerging or high technology clusters have several common properties. These clusters have a good mixture of independent public and private businesses, access to local research centers, a presence of one to three large anchor companies along with several small, spin-off companies and they receive the attention and investments of angel networks and venture capital firms. These emerging clusters also have a focus on areas where there is strong potential to gain a competitive advantage.

1) Biotechnology

Wisconsin is among the leading states for biotechnology research and the number of start up companies. Through the use of cells and biological molecules, such as DNA and proteins, 220 Wisconsin companies solve problems or make products through biotechnology applications. Overlap with other clusters presents numerous opportunities in medicine, agriculture, food processing, industrial manufacturing and environmental management.

Wisconsin is in position to enhance its competitiveness on the biotechnology front. The number of employees, number of

establishments and annual wages for biotechnology companies are growing. Growth has been slightly faster than the average of our four surrounding states, indicating a healthy, competitive sector that can act as a base for expansion.

A key to success in this cluster lies in research and development. With state-of-the-art research facilities and services at the University of Wisconsin, the Medical College of Wisconsin and the Marshfield Clinic, our state is at the forefront of medical research. Madison, Milwaukee and Marshfield form a “bio-triangle,” putting Wisconsin’s biotech industry in a position to become a powerful new engine to drive the Wisconsin economy.

2) Information Technology

According to the Bureau of Labor Statistics, eight out of ten of the fastest-growing occupations are computer-related. Rapid advancements in digital technologies have fueled explosive growth in the demand for workers skilled in the development and use of information technology (IT). The opportunity and the challenge of an information technology cluster is that IT touches every sector of the economy from financial to medical, from business to engineering and environmental services. IT involves the design, development, support and management of hardware, software, multimedia and systems integration services.

Wisconsin has an estimated 94,000 individuals employed in information technology and data processing. Current efforts are already underway and moving forward in ten southeastern counties to identify and work with an IT cluster. A recent survey of the IT businesses in this region found hundreds of small, young IT companies currently serving local businesses and planning for future growth and expansion to national and global markets.

3) Medical Devices

Wisconsin is home to a strong medical devices cluster manufacturing an array of instruments, machines and devices designed to diagnose, cure, treat or prevent disease. This cluster closely connects with Wisconsin’s emerging biotechnology, health-care delivery and health-care information sectors as well as the manufacturing sector. Nationally, Wisconsin, ranks 11th in employment in this industry, with 11,928 workers. With average wages over \$46,000, this cluster is one of the highest paid industries in the state. In 2002, Wisconsin companies exported more than \$1.2 billion of medical devices, thanks in large part to the efforts of GE Medical Systems.

The state's medical device companies share a strong need for innovation, research, venture capital as well as scientific and skilled workforce talent. Ongoing efforts already underway in this sector continue to build on the strength of Wisconsin's medical devices industry and to encourage new companies to develop and grow.

The Commerce Charge to the State Clusters

The Wisconsin Department of Commerce commits to supporting clusters, but the real support and initiative will come from the private sector. The state's clusters will receive cooperation and assistance from the state but industry will drive them.

Commerce will help identify and coordinate with key members within each cluster. The cluster needs to be led by a true representative from the cluster itself – an industry leader acting as the “champion.” Under the direction of this champion, members of each cluster must work together to outline specific needs, goals, challenges and opportunities. Without this essential input from the cluster itself, government is put in the position of trying to determine what is best for the industry. It would be naïve to think that government knows best or that a public sector perspective will be the same as that of the businesses within the cluster.

Each cluster should be able to articulate an achievable vision for the future and where it would like to be in the next five, 10 and 20 years. What major impediments exist to achieve this vision? The cluster also needs to identify opportunities for synergy between the cluster members and ways to attract outside companies. Working together, cluster members can pursue solutions to common problems facing the industry and speak with a united voice. One business may not be heard in the halls of government or around the globe, but by banding together, the cluster's voice becomes much louder and stronger.

State agencies will work with clusters and respond to their needs. Existing programs may be retooled and revamped to better accommodate the cluster and advance its goals. Future funding opportunities may focus on clusters and reward businesses involved in an organized cluster group. In order to utilize state resources, the clusters need to clearly express the challenges and opportunities they face and propose possible solutions.

Commerce understands other cluster options exist and other industries may create viable clusters. The agency welcomes possible future dialogue with these companies. This cluster initiative does not discredit other industries not represented by a particular cluster. Existing programs and current services will still be available to these vital components of the state's economy.

Supporting Our Clusters

Public sector support and resources will be directed towards these 10 recognized clusters, particularly when the goals of the cluster mirror the goals of state government. Clusters can help produce higher-wage jobs, increase the number of entrepreneurs and spin-off companies, conduct research and attract and retain college graduates. All of these activities are highly consistent with Governor Doyle's Grow Wisconsin initiative.

FUNDING

Commerce will use existing funding programs to support clusters when and where appropriate. A current project with the printing cluster shows the type of partnership that can take place between the public and private sector. The cluster identified a specific R&D need and is now receiving support from Commerce to help bring a national trade association with R&D capabilities to Wisconsin. Commerce used existing programs to help form an attractive incentive package for this cluster. The Dairy 2020 program has taken agency resources and tailored them to fit the needs of that particular cluster.

The newly formed Bureau of Entrepreneurship within the Wisconsin Department of Commerce plans to identify and pursue federal grant opportunities and foundation resources that may help clusters. The Bureau will also work with other state agencies to explore their ability to promote clusters. Commerce and the Department of Workforce Development (DWD) have always maintained a positive working relationship to support and develop clusters. Opportunities for worker training and skill development initiatives are already being investigated by DWD.

CLUSTER COORDINATORS

A Commerce staff person will be assigned to serve as a coordinator for each cluster. The coordinators will be a liaison between state government and the industry, participating in cluster meetings and facilitating communication between clustering companies, state agencies and the public.

Different clusters will have different needs and will be in different stages of development. The private-sector industry champion needs to take charge of the cluster, but the coordinator will assist him or her and help articulate the goals and needs of the cluster to state government. The coordinators will maintain a list of key contacts within the cluster. They will also have access to work products, events and other cluster related activities. By working closely with their respective cluster champions and other industry stakeholders, they will help flesh out opportunities and challenges facing the group and will work to identify programs and services that may benefit the cluster and its members.

Conclusion

The Department of Commerce is committed to building the structure necessary to help organize Wisconsin's clusters and move them forward. Commerce will play a role in removing impediments to competitiveness and providing a forum for clusters to voice their challenges and explore opportunities. We will do this by focusing our agency's programs, people and resources on cluster activities. With industry leading the charge, these high-growth established and emerging clusters will build on the strengths of our state and enhance economic development in Wisconsin.

Appendix

The following Commerce employees will serve as cluster coordinators:

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